

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of claims:

1-35. (canceled)

36. (previously presented) A method for preparing an electrically conductive polymeric material comprising:

- a) providing a vinyl benzyl halide grafted film substrate;
- b) reacting the vinyl benzyl halide grafted film with an equimolar mixture of 4,4' bipyridine and p-xylene dihalide to form a viologen salt-grafted film;
- c) coating the viologen salt-grafted film with polyaniline to form a polyaniline-coated film; and
- d) exposing the polyaniline-coated film to near-ultraviolet radiation to obtain an electrically conductive polymer.

37-38. (canceled)

39. (currently amended) A method for preparing an electrically conductive polymeric material comprising:

- a) contacting a polymeric material with [[a]] at least one viologen salt to form a pre-doped composition, wherein said polymeric material is capable of exhibiting electrical conductivity

upon oxidative doping, by forming the viologen salt *in situ* on a substrate to obtain a viologen-salt coated substrate and then forming the polymeric material *in situ* on the viologen-salt coated substrate; and

b) irradiating the pre-doped composition with electromagnetic radiation, thus producing an electrically conductive polymeric material.

40. (canceled)

41. (new) The method according to claim 39, wherein the electromagnetic radiation is of one or more UV or near UV wavelengths.

42. (new) The method according to claim 39, wherein a mixture of viologen salts is formed upon the substrate.

43. (new) The method according to claim 39 wherein at least one of the 1,1'-substituents of the viologen salt are independently selected from an alkyl group or a benzyl group.

44. (new) The method according to claim 39 wherein the at least one viologen salt formed is a polymeric viologen salt.

45. (new) The method according to claim 44, wherein the viologen salt moiety is present in the backbone of the polymeric viologen salt.

46. (new) The method according to claim 44, wherein the viologen salt moiety is present as a side chain of the polymeric viologen salt.

47. (new) The method according to claim 39, wherein the viologen salt is a viologen dihalide.

48. (new) The method according to claim 44, wherein the viologen salt is a viologen dihalide.

49. (new) The method according to claim 39 wherein the polymeric material is polyaniline, a polyaniline derivative, polypyrrole, a polypyrrole derivative or a mixture of at least two compounds selected from the group consisting of a polyaniline, a polyaniline derivative, a polypyrrole and a polypyrrole derivative.

50. (new) The method according to claim 39, wherein the irradiation step is conducted at a temperature of 0°C to approximately 80°C in the presence of air and in the absence of any solvent.

51. (new) The method according to claim 39, wherein the viologen-salt bearing substrate is made by a method comprising:

- i) providing a vinyl alkyl halide grafted low density polyethylene film substrate;
an alkyl halide; and
4,4'-bipyridine;
- ii) contacting the grafted film substrate with the *4,4'-bipyridine* for a time sufficient to permit reaction therebetween forming a modified grafted film substrate;
- iii) subsequently contacting the modified grafted film substrate with the alkyl halide for a time sufficient to permit the formation of a viologen-salt grafted film.

52. (new) A method for preparing an electrically conductive polymeric material comprising:

- a) contacting a polymeric material with at least one viologen salt to form a pre-doped composition, wherein said polymeric material is capable of exhibiting electrical conductivity upon oxidative doping, by forming the polymeric material *in situ* on a substrate to obtain a polymer coated substrate and then forming the viologen salt *in situ* on the polymer coated substrate; and

b) irradiating the pre-doped composition with electromagnetic radiation, thus producing an electrically conductive polymeric material;

wherein both of the polymer and viologen salt are formed *in situ* by a method comprising:

i) providing a low density polyethylene film substrate; a solution of aniline or pyrrole; ammonium persulfate; a vinyl alkyl halide or vinyl benzyl halide; an alkyl halide; and 4,4'-bipyridine;

ii) immersing the polyethylene film substrate into the solution of aniline or pyrrole and ammonium persulfate for a period sufficient to form a polymeric coating on the substrate;

iii) contacting the coated substrate with the vinyl alkyl halide or vinyl benzyl halide;

iv) subjecting the mixture to UV or near UV irradiation for a time sufficient to form a vinyl alkyl halide or vinyl benzyl halide grafted substrate; and

v) forming the viologen salt on the vinyl alkyl halide or vinyl benzyl halide grafted substrate via reaction with 4,4'-bipyridine and an alkyl halide.